PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

INVITATION TO PAY ADDITIONAL FEES

(PCT Article 17(3)(a) and Rule 40.1)

To:
SEED INTELLECTUAL PROPERTY LAW
GROUP PLLC
Attn. Potter, Jane, E. R.
Suite 6300
701 Fifth Avenue
Seattle, WA 98104-7092
UNITED STATES OF AMERICA

Date of mailing *(day/month/year)* 10/04/2002

Applicant's or agent's file reference
210121.42723

PAYMENT DUE within 45 ~~months~~/days from the above date of mailing

International application No.
PCT/US 01/09919

International filing date *(day/month/year)* 27/03/2001

Applicant
CORIXA CORPORATION

1. This International Searching Authority

(i) considers that there are 651 *(number of)* inventions claimed in the international application covered by the claims indicated ~~below~~/on the extra sheet:

)

and it considers that the international application does not comply with the requirements of unity of invention (Rules 13.1, 13.2 and 13.3) for the reasons indicated ~~below~~/on the extra sheet:

(ii) [X] has carried out a partial international search (see Annex) [ ] will establish the international search report on those parts of the international application which relate to the invention first mentioned in claims Nos.:
1-17 (all partially)

(iii) will establish the international search report on the other parts of the international application only if, and to the extent to which, additional fees are paid

2. The applicant is hereby **invited,** within the time limit indicated above, to pay the amount indicated below:

EUR 945,00 (Fee per additional invention) x 650 (number of additional inventions) = EUR 614.250,00 (total amount of additional fees)

Or, _____ x _____ = _____

The applicant is informed that, according to Rule 40.2(c), **the payment of any additional fee may be made under protest,** i.e., a reasoned statement to the effect that the international application complies with the requirement of unity of invention or that the amount of the required additional fee is excessive.

3. [X] Claim(s) Nos. further info. have been found to be unsearchable under Article 17(2)(b) because of defects under Article 17(2)(a) and therefore have not been included with any invention.

Name and mailing address of the International Searching Authority
European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer
Barbara Klaver

Form PCT/ISA/206 (July 1992)

Annex to Form PCT/ISA/206
COMMUNICATION RELATING TO THE RESULTS OF THE PARTIAL INTERNATIONAL SEARCH

International Application No
PCT/US 01/09919

1. The present communication is an Annex to the invitation to pay additional fees (Form PCT/ISA/206). It shows the results of the international search established on the parts of the international application which relate to the invention first mentioned in claims Nos.:
1-17

2. This communication is not the international search report which will be established according to Article 18 and Rule 43.

3. If the applicant does not pay any additional search fees, the information appearing in this communication will be considered as the result of the international search and will be included as such in the international search report.

4. If the applicant pays additional fees, the international search report will contain both the information appearing in this communication and the results of the international search on other parts of the international application for which such fees will have been paid.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 37039 A (TADA KEISHI ;SAKAI YUICHI (JP); ASAHI CHEMICAL IND (JP); KOBAYASHI) 27 August 1998 (1998-08-27)	1-9, 11-16
Y	the whole document SEQ ID NO 1	10,17

X	WO 98 37418 A (CORIXA CORP) 27 August 1998 (1998-08-27) the whole document SEQ ID NO 1	1-8, 11-16

X	WO 00 04149 A (CORIXA CORP) 27 January 2000 (2000-01-27)	1-17
Y	the whole document SEQ ID NO 1	10,17

E	WO 01 25272 A (CORIXA CORP ;REED STEVEN G (US); XU JIANGCHUN (US); CHEEVER MARTIN) 12 April 2001 (2001-04-12) claims 50-71	9-17

E	WO 01 34802 A (HARLOCKER SUSAN L ;CORIXA CORP (US); DAY CRAIG H (US); JIANG YUQIU) 17 May 2001 (2001-05-17) claims 31-55	9-17

E	WO 01 51633 A (FANGER GARY RICHARD ;HARLOCKER SUSAN L (US); MEAGHER MADELEINE JOY) 19 July 2001 (2001-07-19) claims	1-17

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Form PCT/ISA/206 (Annex, first sheet) (July 1992)

Patent Family Annex

Information on patent family members

International Application No
PCT/US 01/09919

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9837039 A	27-08-1998	AU 727823 B2	21-12-2000
		AU 6229598 A	09-09-1998
		EP 0976699 A1	02-02-2000
		JP 10291880 A	04-11-1998
		WO 9837039 A1	27-08-1998
		JP 11071192 A	16-03-1999
WO 9837418 A	27-08-1998	AU 6536898 A	09-09-1998
		BR 9807734 A	31-10-2000
		EP 0972201 A2	19-01-2000
		JP 2001513886 T	04-09-2001
		WO 9837418 A2	27-08-1998
		ZA 9801536 A	08-01-1999
WO 0004149 A	27-01-2000	AU 5314899 A	07-02-2000
		BR 9912007 A	29-01-2002
		CN 1315998 T	03-10-2001
		EP 1097208 A2	09-05-2001
		NO 20010196 A	12-03-2001
		WO 0004149 A2	27-01-2000
		US 6329505 B1	11-12-2001
		US 2002022248 A1	21-02-2002
WO 0125272 A	12-04-2001	AU 7994200 A	10-05-2001
		WO 0125272 A2	12-04-2001
WO 0134802 A	17-05-2001	US 6329505 B1	11-12-2001
		AU 1656501 A	06-06-2001
		AU 6158700 A	30-01-2001
		WO 0104143 A2	18-01-2001
		WO 0134802 A2	17-05-2001
		US 2002022248 A1	21-02-2002
WO 0151633 A	19-07-2001	AU 3447401 A	24-07-2001
		AU 6158700 A	30-01-2001
		WO 0104143 A2	18-01-2001
		WO 0151633 A2	19-07-2001
		US 2002022248 A1	21-02-2002

PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL SEARCHING AUTHORITY

INVITATION TO PAY ADDITIONAL FEES

(PCT Article 17(3)(a) and Rule 40.1)

To:
SEED INTELLECTUAL PROPERTY LAW GROU
P PLLC
Attn. POTTER, Jane E.R
Suite 6300
701 Fifth Avenue
Seattle, WA 98104-7092
UNITED STATES OF AMERICA

Date of mailing (day/month/year): 25/09/2001

PAYMENT DUE within 45 ~~months~~/days from the above date of mailing

Applicant's or agent's file reference: 210121.42720

International filing date (day/month/year): 09/11/2000

International application No.: PCT/US 00/ 30904

Applicant: CORIXA CORPORATION et al.

1. This International Searching Authority

(i) considers that there are 450 (number of) inventions claimed in the international application covered by the claims indicated ~~below~~/on the extra sheet:

and it considers that the international application does not comply with the requirements of unity of invention (Rules 13.1, 13.2 and 13.3) for the reasons indicated ~~below~~/on the extra sheet:

(ii) [X] has carried out a partial international search (see Annex) [ ] will establish the international search report on those parts of the international application which relate to the invention first mentioned in claims Nos.:

See additional sheet, Invention 1.

(iii) will establish the international search report on the other parts of the international application only if, and to the extent to which, additional fees are paid

2. The applicant is hereby **invited,** within the time limit indicated above, to pay the amount indicated below:

EUR 945,00 (Fee per additional invention) x 449 (number of additional inventions) = EUR 424.305,00 (total amount of additional fees)

Or, _____ x _____ = _____

The applicant is informed that, according to Rule 40.2(c), **the payment of any additional fee may be made under protest,** i.e., a reasoned statement to the effect that the international application complies with the requirement of unity of invention or that the amount of the required additional fee is excessive.

3. [X] Claim(s) Nos. See Remark. have been found to be unsearchable under Article 17(2)(b) because of defects under Article 17(2)(a) and therefore have not been included with any invention.

Name and mailing address of the International Searching Authority
European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer
Andria Overbeeke-Siepkes

Form PCT/ISA/206 (July 1992)

INVITATION TO PAY ADDITIONAL FEES

International application No.
PCT/US 00/30904

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

Invention 1: Claims 1-11 14-64 partially

A polypeptide comprising at least an immunogenic portion of a prostate tumor protein defined as SEQ ID 108 and which is encoded by the related SEQ IDs 2,3,107 (according to the Description of the Sequence Identifiers), fragments and variants thereof, fusion proteins comprising it, polynucleotides or oligonucleotides derived therefrom, antibodies or fragments thereof binding to the polypeptide, pharmaceutical compositions or vaccines comprising these products and their use in methods for inhibiting, monitoring or diagnosing the development of a prostate cancer, for removing tumor cells from a sample or for expanding and/or stimulating T-cells.

Inventions 2-450: Claims 1-64 (all partially and as far as applicable)

As for subject 1 but concerning respectively SEQ IDs 1,4-106,109-111,115-171,173-175,177,179-305,307-315,326,328, 330,332-335,340-375,381,382,384-476,524,526,530,531,533,535 and 536.

The use of polypeptides derived from prostate cancer cells for the development of therapeutic and diagnostic means has been well documented in the prior art :

[1] - WO9733909, WO9837093 and WO 9837418 disclose polypeptides for treating and diagnosing prostate cancer. These polypeptides (or the corresponding nucleic acid sequences) are used for the preparation of vaccines and other pharmaceutical compositions, antibodies, probes or primers

[2] - In IMMUNOTECHNOLOGY 3 (1997),161-172, Sjögren, H. reviews the various techniques used for cancer-vaccination by using engineered cells. In figures 1 and 2, the author summarises the key factors involved in the interactions between T-cells and antigen-presenting cells, in particular dendritic cells. The success of these therapy is examplified, among others, with prostate cancer in rats (see pages 167 and 168).

In view of the prior art, the problem underlying the application can be defined as the provision of further polypeptides derived from prostate cancer.

The solutions proposed in the underlying application can be summarised as the polypeptides (and the corresponding nucleic acids) as defined in claims 1 and 31.

Due to the fact that the use of polypeptides derived from prostate cancer cells for the development of therapeutic and diagnostic means is known in the prior art, that therapeutic immunization techniques against cancers, and especially prostate cancer are common state of the art, due to the essential difference in primary structure of the different groups of solutions, and due to the fact that no other technical features can be distinguished which, in the light of the prior art could be regarded as special technical features, the ISA is of the opinion that there is no single inventive concept underlying the plurality of claimed inventions of the present application in the sense of rule 13.1 PCT. Consequently there is lack of unity.

The applicant states and shows that some sequences as defined in claims 1 and 31 correspond to the same product (e.g. clone F1-12 corresponds to SEQ IDs 2,3, 107 and 108) and therefore to the same inventive concept. Nevertheless, due to the lack of an obvious and straight forward relationship between the product designations and the corresponding sequences in the Sequence Listing, the ISA had to consider (with exception of Subject 1.) each sequence as a different invention formulated as the 450 different subjects on the communication pursuant to Art. 17(3)(a) PCT.
In case the applicant choses to pay one or more additional search fees for any of subjects 2 to 450, and provides a clear relationship between a product designation and several of the sequences, the ISA is willing to regroup these sequences in one search effort.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 206

Continuation of Box 3.

Although claims 23 24 31-33 36 37 39-41 are (partially) directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

Annex to Form PCT/ISA/206
COMMUNICATION RELATING TO THE RESULTS OF THE PARTIAL INTERNATIONAL SEARCH

International Application No
PCT/US 00/30904

1. The present communication is an Annex to the invitation to pay additional fees (Form PCT/ISA/206). It shows the results of the international search established on the parts of the international application which relate to the invention first mentioned in claims Nos.:
1-11,14-64
2. This communication is not the international search report which will be established according to Article 18 and Rule 43.
3. If the applicant does not pay any additional search fees, the information appearing in this communication will be considered as the result of the international search and will be included as such in the international search report.
4. If the applicant pays additional fees, the international search report will contain both the information appearing in this communication and the results of the international search on other parts of the international application for which such fees will have been paid.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 37093 A (CORIXA CORP) 27 August 1998 (1998-08-27)	1-11, 14-24, 60,61, 63,64
Y	the whole document	25-41
X	WO 98 37418 A (CORIXA CORP) 27 August 1998 (1998-08-27) the whole document	1-11, 42-64
X	DATABASE EMBL 'Online! Accession no AF047020 Sequence ID AF047020, 20 February 1998 (1998-02-20) ALBERS C ET AL: "Human alpha-methylacyl-CoA racemase cDNA sequence" XP002176408 abstract	1-11,60, 61,63,64
Y	EP 0 317 141 A (BECTON DICKINSON CO) 24 May 1989 (1989-05-24) the whole document	34-36

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

2

International Application No
PCT/US 00/30904

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
Y	SCHMIDT-WOLF G D ET AL: "Activated T cells and cytokine-induced CD3+CD56+ killer cells." ANNALS OF HEMATOLOGY, vol. 74, no. 2, 1997, pages 51-56, XP002176407 ISSN: 0939-5555 the whole document	34-36
A	WO 97 33909 A (CORIXA CORP) 18 September 1997 (1997-09-18)	
Y	SJOGREN H O: "Therapeutic immunization against cancer antigens using genetically engineered cells" IMMUNOTECHNOLOGY, ELSEVIER SCIENCE PUBLISHERS BV, NL, vol. 3, no. 3, 1 October 1997 (1997-10-01), pages 161-172, XP004097000 ISSN: 1380-2933 the whole document	25-33, 37-41
P,X	WO 00 04149 A (CORIXA CORP) 27 January 2000 (2000-01-27) the whole document	1-11, 14-64
E	WO 01 25272 A (CORIXA CORP ;REED STEVEN G (US); XU JIANGCHUN (US); CHEEVER MARTIN) 12 April 2001 (2001-04-12) claims	1-11, 14-64

2

Patent Family Annex

Information on patent family members

International Application No
PCT/US 00/30904

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9837093 A	27-08-1998	US 6261562 B	17-07-2001
		AU 731840 B	05-04-2001
		AU 6181898 A	09-09-1998
		CN 1252837 T	10-05-2000
		EP 1005546 A	07-06-2000
		HU 0002095 A	28-10-2000
		NO 994069 A	22-10-1999
		PL 335348 A	25-04-2000
		TR 9902053 T	21-04-2000
		US 6262245 B	17-07-2001
		ZA 9801585 A	04-09-1998
WO 9837418 A	27-08-1998	AU 6536898 A	09-09-1998
		BR 9807734 A	31-10-2000
		EP 0972201 A	19-01-2000
		ZA 9801536 A	08-01-1999
EP 0317141 A	24-05-1989	US 5041289 A	20-08-1991
		AT 108659 T	15-08-1994
		DE 3850745 D	25-08-1994
		DE 3850745 T	24-11-1994
		ES 2059537 T	16-11-1994
		JP 2002345 A	08-01-1990
WO 9733909 A	18-09-1997	AU 728186 B	04-01-2001
		AU 2329597 A	01-10-1997
		BR 9708082 A	27-07-1999
		CA 2249742 A	18-09-1997
		EP 0914335 A	12-05-1999
		NO 984229 A	13-11-1998
		US 6034218 A	07-03-2000
WO 0004149 A	27-01-2000	AU 5314899 A	07-02-2000
		EP 1097208 A	09-05-2001
		NO 20010196 A	12-03-2001
WO 0125272 A	12-04-2001	AU 7994200 A	10-05-2001

ANNEX TO THE INTERNATIONAL SEARCH REPORT ON INTERNATIONAL PATENT APPLICATION NO. US 9205810 SA 62391

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 06/10/92
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP-A-0098118	11-01-84	US-A- 4503142	05-03-85

```
RESULT  21
AAR32355
ID   AAR32355 standard; Protein; 29 AA.
XX
AC   AAR32355;
XX
DT   16-JUN-1993  (first entry)
XX
DE   Protein stabilising sequence.
XX
KW   Alpha-helix; proteolysis; sigma factor; RNA polymerase;
KW   beta-galactosidase; proinsulin; epidermal growth factor; EGF;
KW   serum protease; vaccine.
XX
OS   Bacillus subtilis.
XX
PN   WO9303156-A.
XX
PD   18-FEB-1993.
XX
PF   09-JUL-1992;   92WO-US05810.
XX
PR   26-JUL-1991;   91US-0736447.
XX
PA   (TEXA ) UNIV TEXAS SYSTEM.
XX
PI   Haldenwang WG;
XX
DR   WPI; 1993-076513/09.
DR   N-PSDB; AAQ36972.
XX
PT   Polypeptide sequence for stabilising proteins against proteolysis
PT   - is expressed as recombinant fusion protein by DNA vector, has
PT   hydrophobic and positively charged polar faces
XX
PS   Claim 7; Page 23 + Fig 1; 33pp; English.
XX
CC   The sequence is a peptide capable of forming a protecting
CC   hydrophobic faced alpha-helix structure when attached to
CC   a proteolytically sensitive protein.  It is derived, originally
CC   from B. subtilis sigma factor and can be used to stabilise, eg.
CC   RNA polymerase sigma factor from B. subtilis or E. coli; beta-
CC   galactosidase; proinsulin; epidermal growth factor; etc.
CC   The peptide can be attached in vitro (e.g. to protect antigenic
CC   vaccine components against serum protease after injection) but is
CC   usually incorporated during in vivo synthesis of recombinant fusion
CC   proteins, esp. to protect against serum proteases.
XX
SQ   Sequence   29 AA;

  Query Match             1.8%;  Score 7;  DB 14;  Length 29;
  Best Local Similarity   100.0%;  Pred. No. 11;
  Matches    7;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy     248 LGLKSDE 254
           |||||||
Db      19 lglksde 25
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RESULT  22
AAM31749
ID   AAM31749 standard; Protein; 45 AA.
XX
AC   AAM31749;
XX
DT   17-OCT-2001  (first entry)
XX
DE   Peptide #5786 encoded by probe for measuring placental gene expression.
XX
KW   Probe; microarray; human; placenta; antenatal diagnosis;
KW   genetic disorder.
XX
OS   Homo sapiens.
XX
PN   WO200157272-A2.
XX
PD   09-AUG-2001.
XX
PF   30-JAN-2001; 2001WO-US00663.
XX
PR   04-FEB-2000; 2000US-0180312.
PR   26-MAY-2000; 2000US-0207456.
PR   30-JUN-2000; 2000US-0608408.
PR   03-AUG-2000; 2000US-0632366.
PR   21-SEP-2000; 2000US-0234687.
PR   27-SEP-2000; 2000US-0236359.
PR   04-OCT-2000; 2000GB-0024263.
XX
PA   (MOLE-) MOLECULAR DYNAMICS INC.
XX
PI   Penn SG,  Hanzel DK,  Chen W,  Rank DR;
XX
DR   WPI; 2001-488897/53.
XX
PT   Human genome-derived single exon nucleic acid probes useful for
PT   analyzing gene expression in human placenta
XX
PS   Claim 27; SEQ ID No 32018; 654pp; English.
XX
CC   The present invention relates to single exon nucleic acid probes (SENP:
CC   see AAI31315-AAI57546). The present sequence is a peptide encoded by one
CC   such probe. The probes are useful for producing a microarray for
CC   predicting, measuring and displaying gene expression in samples derived
CC   from human placenta. The probes are useful for antenatal diagnosis of
CC   human genetic disorders.
XX
SQ   Sequence   45 AA;

  Query Match             1.8%;  Score 7;  DB 22;  Length 45;
  Best Local Similarity   100.0%;  Pred. No. 17;
  Matches    7;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy     375 SNKVKAS 381
           |||||||
Db      26 snkvkas 32
```

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RESULT  23
AAR82858
ID   AAR82858 standard; Protein; 77 AA.
XX
AC   AAR82858;
XX
DT   04-FEB-1996  (first entry)
XX
DE   Fragment of alpha-subunit chicken inhibin.
XX
KW   Inhibin; peptide hormone; ovulation; follicle stimulating hormone;
KW   FSH; egg laying; cholesterol; puberty; ostrich.
XX
OS   Gallus domesticus.
XX
PN   WO9522980-A.
XX
PD   31-AUG-1995.
XX
PF   28-FEB-1995;   95WO-US02795.
XX
PR   28-FEB-1994;   94US-0202964.
XX
PA   (AGRI-) AGRITECH LAB INC.
PA   (LOUU ) UNIV LOUISIANA STATE & AGRIC & MECH COLL.
XX
PI   Fioretti WC,  Kousoulas K,  Satterlee DG;
XX
DR   WPI; 1995-311377/40.
DR   N-PSDB; AAT01006.
XX
PT   Avian inhibin alpha-sub-unit fusion protein - useful for accelerating
PT   onset of egg laying in bird(s) and for reducing cholesterol levels in
PT   egg(s)
XX
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